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### HUNGARIAN TRANSFORTATION-DEVELOPMENT PLAN

Andras Fekete

Hungary's Three-Year Plan, which was completed at the end of 1949, was devoted to the reconstruction of the country's production and transportation facilities after the devastation of the war. The object of the current Five-Year Plan, on the other hand, is to create additional production and transportation capacity. Briefly, it is planned to add 50 percent to the productive capacity of the nation and to reduce production costs by 25 percent during the Five-Year Flan.

In transportation, the plan provides for a 60-percent increase in traffic. To achieve this goal, a comprehensive technical development plan has been worked out with the aid of Soviet experts. This plan was based on maximum goals, increased work norms as a result of the Stakhanovite movement, the 2,000-ton and 500-kilometer movements in railroad transportation, the 100,000-kilometer movement in highway traffic, and the 10,000-kilometer movement in navigation.

Transportation performance can be stepped up by two principal methods: increase in load and increase in speed. These are the underlying methods on which the technical development plan of the Hungarian transportation systems has been based. Other important aims incorporated in the technical development plan are material conservation and exploitation of hidden manpower reserves. Realization of these aims is based largely on the Stakhanovite and labor-competition movements and large-scale mechanization of operations.

This article deals with the objectives and over-all methods of the technical development plan for Hungary's railroad, highway, and river transportation systems.

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### Railreads

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Track and rolling-stock maintenance work will be extensively mechanized. Track maintenance, including the laying of ties, will be 57 percent mechanized at the end of the Five-Year Plan, as compared with 5 percent in 1949. Specialized rolling-stock repair shops will be built, organized on the assembly-line system. To speed up loading and unloading, the larger freight yards will be equipped with conveyer belts, electric trucks, and self-propelled cranes.

All railroad cars will be equipped with sir brakes by the end of 1951 and automatic switches will be installed systematically. By the end of the Five-Year Plan, three times as many railroad station: will be equipped with automatic switches as in 1949. The rail network, currently in a very dilapidated condition, will be renovated, and the length of track equipped with 48.3-kilogram rails will be more than double that of 1949.

Electrification of the railroads will be pushed vigorously. A new type of electric locomotive, equipped with individually driven axies, thus eliminating the side driving rods, will be introduced. This will increase the tractive power from 25 horsepower per ton of locomotive to 37 horsepower. A modern electric shunting locomotive will also be designed. At the same time, the efficiency of steam locomotives will be increased by heat-engineering methods and the use of seft-water techniques. Tentatively, ten steam locomotives will be equipped with automatic stokers. For diesel-electric traction, a 2,000-horsepower line haul and a 600-horsepower shunting locomotive is being designed.

In freight-car construction, efforts will be made to increase the number of gondola cars and to build installations for the mechanized loading and unloading of boxcars and flatcars. Freight-car couplings will be replaced by equipment designed for maximum-capacity trains. The number of four-axle passenger cars will be 50 percent greater by the end of the Five-Year Plan than in 1949. The new passenger cars will be designed to reduce weight by the employment of light metals and new construction techniques. Traffic control will be modernized by the introduction of the block system which will be installed in a large part of the main lines by the end of the Five-Year Plan.

By the end of the Five-Year Plan, average traveling speed will be increased as follows—for express trains, from \$46.9 kilometers per hour in 1949 to 52.5 kilometers per hour; for other pessenger trains, from 27.5 to 35 kilometers per hour; and for freight trains, from 12.1 to 30 kilometers per hour. As a result, the average turnaround time will be reduced to \$4.3 days as compared with 5.5 days in 1949. In addition, the ratio of net to gross ton-kilometers will be increased from \$48.1 percent in 1949 to 53 percent at the end of 1954.

By the end of the Five-Year Plan, the mileage covered per year will be increased from 36,000 to 48,000 kilometers for steam locomotives, from 110,000 to 140,000 kilometers for electric locomotives, and from 52,000 to 72,000 kilometers for railroad motor cars. The amount of fuel used per 100 gross ton-kilometers by the end of the Five-Year Plan, in comparison with 1949, will be reduced as follows: coal for steam locomotives, from 11.27 kilograms to 10 kilograms; electric power for electric locomotives, from 3.2 kilowatthours to 3 kilowatthours; and oil for diesel locomotives, from 600 grams to 625 grams.

In repair work, economies will be achieved by the use of nonferrous metals for the manufacture of bearings, by standardizing the roller-bearing types used, and by automatic lubrication.

As a result of the technical development plan, the number of gross tonkilometers per railroad worker will increase by hO percent and repair time will be reduced by 30 percent during the Five-Year Plan.

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Railroads Serving Primarily Agricultural Areas

Those railroads serving primarily agricultural areas will be gradually converted to 760-millimeter gauge, and will be equipped with 14-kilogram rails, block switches, and reinforced-concrete ties. The ratio of standard-gauge track to the total length of railroad track for these areas will be increased to 87 percent by the end of the Five-Year Plan. Old-fashioned steam locomotives firing excessive amounts of coal will be scrapped and traction will be improved by the introduction of 26- and 52-horsepower diesel locomotives. It is also planned to design standard four-axle swivel-truck freight and passenger cars.

The average traveling speed on railroads serving these areas will be increased from 6 to 15 kilometers per hour, the ratio of net to gross ton-kilometers from 40 percent to 50 percent, and the distance covered by locomotives per year from 5,500 to 7,500 kilometers for steam traction and from 5,000 to 11,000 kilometers for motor traction. The quantity of coal fired by steam locomotives will concurrently be reduced to 1.8 kilograms per 100 gross ton-kilometers. As a result of this modernization work, freight traffic will be increased by 75 percent and passenger traffic by 15 percent on the railroads serving these areas in the course of the Five-Year Plan.

## Highway Transportation

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Under the technical development plan, the most modern types of trucks and long-distance autobusses will be introduced. Beside economical fuel consumption, one of the most important features of highway transportation will be the smallest possible variety of vehicle types. Vehicles equipped with diesel engines will be given preference and 25 percent of the trucks will be provided with trailers. The annual average distance traveled will be \$42,000 kilometers for trucks, 60,000 kilometers for city busses, and \$5,000 kilometers for highway busses. Trucks will be operated on an average of 310 days per year, city busses \$25 days, and highway busses \$20 days per year. By using better engines, and by improving maintenance, diesel-oil consumption will be reduced from \$0.5 liters per 100 kilometers in 1949 to 35 liters at the end of the Five-Year Plan. Fuel consumption of trucks will concurrently be reduced from 10.3 to 9.7 liters of gasoline and from 9 4 to 8 8 liters of diesel oil per 100 ton-kilometers. Maintenance and overhaul time will be reduced from 7.7 hours to 5 8 hours per 100 kilometers for trucks during the Five-Year Plan.

# Navigation

Loading operations at the docks will be mechanized 93 percent at the end of 1954 as compared with 88 percent in 1949. The ship-maintenance and repair yards will be equipped with modern machinery and mechanized floats and docks. A serious effort will be made to convert steamship boilers to automatic firing.

A standardized 1,000-ton barge will be designed to satisfy the requirements of minimum drag resistance and easy mechanical loading. It is also planned to design a new seagoing vessel with a 25-percent increase in speed as compared with the Danube-Black Sea vessels now in operation. Particular attention will be paid to the construction of new barges with a view to raising the ratio of freight to tractive horsepower by 60 percent. The average traveling speed will be increased to 7.5 kilometers per hour for tugboats, 15 kilometers per hour for seagoing vessels, and 17.5 kilometers per hour for passenger ships. The amount of coal fired will be reduced from 1.6 to 1.45 kilograms per horsepower. The oil consumption of diesel-operated vessels will remain 0.13 kilogram, but the tractive power will be increased by 20 percent. Owing to the mechanization of loading operations, the average output of dock workers will be increased from 3,150 tons to 4,900 tons per hour.

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